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Grain storage, storage cost and training module

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Introduction

With the expansion of the ethanol industry in Iowa in 2005 the Iowa Grain Quality Initiative saw the need to evaluate quality management practices and grain storage practices impacting grain movement to the ethanol industry. This presentation describes the response of the Iowa Grain Quality Initiative to the rapid expansion of Iowa's ethanol industry. As more corn is used locally in ethanol fuel production, less is available for export, feed applications and other processing. This has led to changes in grain transport, on-farm grain storage and the function of local grain elevators.

Storage analysis

The target of the IGQI training module is on-farm grain storage, which was clearly defined by a 2006 survey of the Iowa Ethanol industry as the primary source of corn. The survey indicated 62 percent of the corn was coming directly from the farm to the ethanol plant, and that this share would not change as production capacities increased. The 2006 survey of ethanol plants showed the ethanol plants are quality sensitive: moisture contents above 18% and mold/sprout damage levels above 10% are typically rejected. Most plants choose to buy US Grade #2 Yellow Corn at or below 15%. The fact that ethanol plants store, on the average, about 5% of their annual corn inventory can cause ethanol production variability if received corn is out of the quality structure. Both moisture and damage levels affect how well the corn will perform in the formation process. Dry corn stores well with a minimal amount damage, even over several month. Also, dry corn is easier to grind in mills using a hammer mill to break corn.

In 2007 Iowa Farm and Rural Life Poll surveyed on farm grain storage for the IGQI. The "2007 Survey Report on Grain Storage and Transportation," reported that twelve percent of the Iowa Farmers intended to construct on-farm storage over the next three years, with an average of 30,000 bushels of new capacity. The addition of on-farm storage was a direct response to the demand for corn by the ethanol industry. Delivery of corn from on-farm storage will require greater attention to quality management and year long. This longer storage time will require better up front conditioning, and cleaner bins, and better air flow processes for storage. Also, the data from the Iowa Farm and Rural Life Pool indicated that over 70% of producers are not aware of the increased quality needs of the ethanol industry.

Evaluation of Iowa data from the National Agricultural Statistic Service, and Iowa Department of Agricultural and Land Stewardship for 2005 and 2006 gave harvest acres and yield and commercial storage information. The data showed on farm storage and commercial storage and carry over stock and projected yield, a projection of a little over one half billion bushels of covered storage would be needed in the state of Iowa to maintain quality levels in stored grain.

Storage tools

The Grain Storage, Storage Cost and Training Module was developed including three concepts: The over all design of the module is a flow model for decision making on what is needed to develop a storage site and what equipment would be best for the site. The grain flow model leads to a decision maker of what it will cost to construct storage options. The final section is market decision tools for cost of storing grain. The training module can be accessed from the Iowa Grain Quality Initiative web site, www.iowagrains.org.

References

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Acknowledgments

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